

REMARKS

In an Office Action mailed on May 6, 2003, in which claims 14-90 were pending, claims 14, 23, 25-29, 31, 37, 40, 43, 46, 49, 52, 55, 58, 61, 64, 68-77, 81, 84 and 87-90 were objected to for informalities; claims 22-25, 28-30, 37-39, 49-51, 58-60, 61-76 and 89 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite; claims 14-26 were rejected under 35 U.S.C. §101 for statutory double patenting; claims 27-90 were rejected for obviousness-type double patenting; claims 14-20, 26-29, 31-35, 37-65, 68-79 and 81-90 were rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,228,025, issued to Le Floch et al., in view of U.S. Patent No. 5,345,439, issued to Marston; claims 21-24, 36, 66-67 and 80 were rejected under 35 U.S.C. §103(a) as being obvious over Le Floch et al. and Marston in view of U.S. Patent No. 4,884,139, issued to Pommier; and claims 25 and 30 were rejected under 35 U.S.C. §103(a) as obvious over Le Floch et al., Marston and Pommier in view of U.S. Patent No. 5,282,222 issued to Fattouche et al. In this Amendment, claims 14, 22-31, 37, 40, 43, 46, 49, 52, 55, 58, 61, 64, 68-77, 81, 84, and 87-90 are amended and new claims 91-98 are added.

Objected to Claims

In the Office Action, the Examiner objected to claims 14, 23, 25-29, 31, 37, 40, 43, 46, 49, 52, 58, 61, 64, 68-67, 81, 84 and 87-90 for informalities. With this Amendment, Applicant has amended each of the objected-to claims to overcome such informalities. Reconsideration and allowance of the aforementioned claims is respectfully requested.

35 U.S.C. §112 Rejections

In the Office Action, the Examiner rejected claims 22-25, 28-30, 37-39, 49-51, 58-60, 61-76 and 89 as being indefinite. With this Amendment, Applicant has amended claims 22-25, 28-30, 37, 49, 58, 61, 69-76, and 89 to overcome the indefiniteness rejections. Because claims 38, 50, 51, 60, and 62-68 depend from amended base claims, and it is believed that those amended base claims are now definite, then claims 38, 50, 51, 60, and 62-68 are also definite. Reconsideration and allowance of claims 22-25, 28-30, 37-39, 49-51, 58-60, 61-76 and 89 is respectfully requested.

Double Patenting Rejections

In the Office Action, the Examiner rejected claims 14-26 under 35 U.S.C. §101 for claiming the same invention as that of claims 1-6 and 8-14 of U.S. Patent No. 6,282,167. Claim 14 has been amended to delete the phrase "...but not all..." such that claim 14 now reads "...extracting from the modulated OFDM signal at least one of the frequency subbands...." Likewise, claim 26 has been amended to delete the phrase "...but less than all..." such that claim 26 now reads "...extracting at least one of the frequency subbands from the received OFDM signal by filtering...." With these Amendments, the statutory double patenting rejection for claims 14 and 26 is overcome because there exists a possibility that a method that would literally infringe either claim 14 or 26 would not infringe claims 1-6 and 8-14 of the '167 patent because claims 14 and 26 are no longer limited by having less than all frequency subbands as recited claims 1-6 and 8-14 of the '167 patent. Because claims 15-25 depend in some fashion from claim 14, and because it is believed that claim 14 no longer claims the same invention as claims 1-6 and 8-14 of the '167 patent, then claims 15-25 also no longer claim the same invention, and are thus allowable. Reconsideration and allowance of claims 14-26 is respectfully requested.

The Examiner also rejected claims 27-90 under the judicially created doctrine of obviousness-type double patenting because the aforementioned claims disclose the same features as that of claims 1-13 of the '167 patent. A terminal disclaimer will be filed in due course when all other issues regarding patentability of claims 27-90 have been resolved.

Rejections under 35 U.S.C. §103

In the Office Action, the Examiner rejected claims 14-20, 26-29, 31-35, 37-65, 68-79 and 81-90 under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,228,025, issued to Le Floch et al.(hereinafter "Le Floch"), in view of U.S. Patent No. 5,345,439, issued to Marston (hereinafter "Marston"). Applicant respectfully disagrees. Le Floch is a patent belonging to the same assignees as the present invention. Le Floch discloses an OFDM signal and, more precisely, the process for acquiring the AFC. Clearly, the OFDM signal of the present invention can be made using the process for acquiring the AFC as disclosed by Le Floch. However, Le Floch does not

disclose or suggest the way the signal of the present invention is made (associating a source signal to a given subband, in a single OFDM signal).

Furthermore, Le Floch neither teaches nor suggests extracting a specific subband of the OFDM signal. The signal is made of several frequency carriers, but they are not organized in subbands (*see* Col. 4, lines 49-54). It should be noted that there is a difference between a carrier, and a subband which is made of several carriers. The method of Le Floch is directed at distributing data on the whole band of the signal to be transmitted, (*see* Col. 7, lines 22-28), teaching away from the present invention. Additionally, in Le Floch, the whole signal is filtered (col. 8, l. 33-34), but there is no provision for filtering a single subband out of the entire signal. Nor would it be obvious to modify Le Floch to filter a single subband out of the entire signal, because the Le Floch signal is distributed on all the carriers, to provide against fading phenomena.

Marston does not appear to be relevant to the present invention because it does not refer to transmitting several subbands, corresponding to several independent source signals, in a sole OFDM signal. Marston suggests a multi-purpose digital signal processing apparatus, which is very different from the present invention. Marston proposes, classically, to transmit several independent signals, which can be of the OFDM type. Each of these signals corresponds to one source signal. The novelty of Marston is a multi-modulator device. It is possible to choose, in each sub-system, a TDM format, an FDM format, an OFDM format, or a CDM format. Marston, therefore, teaches that each independent source signal is transmitted independently (*see* Col. 1, lines 40-44). One source signal is fed into one sub-system, which provides one OFDM signal to be transmitted. Each subband is therefore modulated independently (using either TDM, FDM or CDM). However, in the present invention, there is a single OFDM signal, with several subbands (each corresponding to a source signal), which are orthogonal in each subband and from subband to subband. The OFDM signal of the present invention is processed by a single modulator. According to Marston, there is one sub-system for each source signal.

The combination of Le Floch and Marston is thus not relevant to the present invention. Le Floch can be used in Marston, as a way of processing one OFDM signal. However,

the combination does not suggest the new and non-obvious teachings of the present invention. The teachings of claims 14-20, 26-29, 31-35, 37-65, 68-79 and 81-90 are not taught, suggested or disclosed in either Le Floch or Marston, or by the combination of Le Floch and Marston. Thus, the rejection of claims 14-20, 26-29, 31-35, 37-65, 68-79 and 81-90 under 35 U.S.C. §103(a) should be withdrawn. Reconsideration and notice to that effect is respectfully requested.

In the Office Action, the Examiner also rejected claims 21-24, 36, 66-67 and 80 under 35 U.S.C. §103(a) as being obvious over Le Floch and Marston in view of U.S. Patent No. 4,884,139, issued to Pommier (hereinafter "Pommier"). Pommier suggests a method to interleave an OFDM signal and a classical analogic television signal. Frequencies are chosen to avoid perturbances. However, as stated before, the OFDM signal corresponds to a single source signal. It is not organized in several subbands, each being associated to a distinct source signal. In addition to the above arguments made with respect to Le Floch and Marston, the teachings of claims 21-24, 36, 66-67 and 80 are not taught, suggested or disclosed in either Le Floch, Marston or Pommier, or any combination thereof. Thus, the rejection of claims 21-24, 36, 66-67 and 80 under 35 U.S.C. §103(a) should be withdrawn. Reconsideration and notice to that effect is respectfully requested.

In the Office Action, the Examiner also rejected claims 25 and 30 under 35 U.S.C. §103(a) as being obvious over Le Floch, Marston and Pommier in view of U.S. Patent No. 5,282,222, issued to Fattouche et al (hereinafter "Fattouche"). Claim 25 depends in fashion from claim 14, while claim 30 depends from claim 27. Applicant believes that neither claim 14 or claim 27 is obvious for reasons already explained. Because claims 25 and 30 depend from non-obvious claims, then claims 25 and 30 are also non-obvious and the rejection is overcome. Furthermore, with regard to Fattouche, the only relevant suggestion is in relation to FPT signals with no teaching or suggesting the novelty of the present invention. Thus, in addition to the arguments previously presented with regard to Le Floch, Marston and Pommier, and now Fattouche, none teach, suggest or disclose, singly or in any combination, the invention as defined by claims 25 and 30. The rejection of claims 25 and 30 under 35 U.S.C. §103(a) should therefore be withdrawn. Reconsideration and notice to that effect is respectfully requested.

New claims 91-98 are added to better define the invention and each find basis in the specification. New claim 91, in conjunction with amended claim 23, clarify the alternative between an RF transposition oscillator and an IF transposition oscillator. Likewise, new claim 92, in conjunction with amended claim 28, clarify the alternative between a first RF transposition oscillator and a second IF transposition oscillator. New claims 93 and 94 claim an OFDM signal to be used in respective embodiments as defined by claims 14 and 27. New claims 95-98 are added to better define the present invention.

With this Amendment, Applicant believes all of claims 14-98 are in condition for allowance. Examination and notice to that effect is respectfully requested. The Examiner is invited to contact the undersigned attorney at the number listed below if such a call would in any way facilitate examination of the application.


Respectfully submitted,

KINNEY & LANGE, P.A.

Date:

November 5, 2003

By



Jeffrey D. Shewchuk, Reg. No. 37,235

THE KINNEY & LANGE BUILDING
312 South Third Street
Minneapolis, MN 55415-1002
Telephone: (612) 339-1863
Fax: (612) 339-6580

JDS:DRD:eav